

# FCC TEST REPORT

For

Microwave Oven

Model Number: WP1000DI-930  
FCC ID:NRTSZJENSMWOC30AB  
Class II change

Report Number: WT068001736

|                 |   |  |
|-----------------|---|--|
| Test Laboratory | : | Shenzhen Academy of Metrology and<br>Quality Inspection EMC Laboratory<br>Guangdong EMC Compliance Test Center |
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## TABLE OF CONTENTS

|  |                  |
|--|------------------|
| <b>TEST REPORT DECLARATION .....</b>                             | <b>3</b>         |
| <b>1. TEST RESULTS SUMMARY .....</b>                             | <b>4</b>         |
| <b>2. GENERAL INFORMATION .....</b>                              | <b>5</b>         |
| 2.1. Report information .....                                    | 5                |
| 2.2. Laboratory Accreditation and Relationship to Customer ..... | 5                |
| 2.3. Measurement Uncertainty .....                               | 5                |
| <b>3. PRODUCT DESCRIPTION .....</b>                              | <b>6</b>         |
| 3.1. EUT Description .....                                       | 6                |
| 3.2. Block Diagram of EUT Configuration.....                     | 6                |
| 3.3. Operating Condition of EUT .....                            | 6                |
| 3.4. Support Equipment .....                                     | 6                |
| 3.5. Test Conditions .....                                       | 6                |
| 3.6. Modifications .....   | 6                |
| <b>4. TEST EQUIPMENT USED .....</b>                              | <b>7</b>         |
| 4.1. Test Equipment Used to Measure Conducted Disturbance .....  | 7                |
| 4.2. Test Equipment Used to Measure Radiated Disturbance .....   | 错误！未定义书签。        |
| <b>5. CONDUCTED DISTURBANCE TEST .....</b>                       | <b>8</b>         |
| 5.1. Test Standard and Limit .....                               | 8                |
| 5.2. Test Procedure .....  | 8                |
| 5.3. Test Arrangement.....                                       | 8                |
| 5.4. Test Data .....   | 8                |
| <b>6. RF POWER OUTPUT MEASUREMENT AND RESULT .....</b>           | <b>11</b>        |
| <b>7. RADIATED DISTURBANCE TEST .....</b>                        | <b>12</b>        |
| 7.1. Test Standard and Limit.....                                | 12               |
| 7.2. Test Procedure .....  | 12               |
| 7.3. Test Arrangement.....                                       | 12               |
| 7.4. Test Data .....   | 12               |
| <b>8. TABLE LIST .....</b>                                       | <b>错误！未定义书签。</b> |
| <b>APPENDIX I TEST CURVES .....</b>                              | <b>14</b>        |
| <b>APPENDIX II TEST PICTURE.....</b>                             | <b>17</b>        |

**TEST REPORT DECLARATION**

Applicant : SHENZHEN JENS ELECTRONIC CO., LTD  
Address : 71# Building changxing Industrial Zone Gongming Town, Baoan,  
Shenzhen, China.  
Manufacturer : SHENZHEN JENS ELECTRONIC CO., LTD  
Address : 71# Building changxing Industrial Zone Gongming Town, Baoan,  
Shenzhen, China.  
EUT Description : Microwave oven  
Model Number : WP1000DI-930  
FCC ID : NRTSZJENSMWOC30AB


Test Standards:

**FCC Part 18**

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

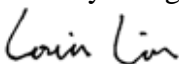
Tested by:

  
\_\_\_\_\_  
(Dewelly Yang)

Date:

Sep. 18, 2006  
\_\_\_\_\_

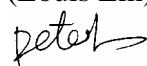
Checked by:

  
\_\_\_\_\_  
(Louis Lin)

Date:

Sep. 18, 2006  
\_\_\_\_\_

Approved by:

  
\_\_\_\_\_  
(Peter Lin)

Date:

Sep. 18, 2006  
\_\_\_\_\_

## 1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

| Test Items            | Test Results |
|-----------------------|--------------|
| Conducted Disturbance | Pass         |
| Radiated disturbance  | Pass         |

## 2. GENERAL INFORMATION

### 2.1. Report information

- 2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.
- 2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.
- 2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

### 2.2. Laboratory Accreditation and Relationship to Customer

The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at Bldg. of Metrology & Quality Inspection, Longzhu Road, Nanshan District, Shenzhen, Guangdong, China. At the time of testing, Laboratory is accredited by the following organizations:

China National Accreditation Committee for Laboratories (CNAL) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is L0579.

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number are **97379**(open area test site) and **274801**(semi anechoic chamber).

The Laboratory is listed in Voluntary Control Council for Interference by Information Technology Equipment (VCCI), and the registration number are **R-1974**(open area test site) , **R-1966**(semi anechoic chamber), **C-2117**(mains ports conducted interference measurement) and **T-180**(telecommunication ports conducted interference measurement).

The Laboratory is registered to perform emission tests with Industry Canada (IC), and the registration number is **IC4174**.

TUV Rhineland accredits the Laboratory for conformance to IEC and EN standards, the registration number is E2024086Z02.

### 2.3. Measurement Uncertainty

Available upon request.

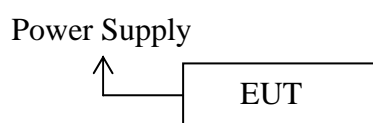
### 3. PRODUCT DESCRIPTION

#### 3.1. EUT Description

|                       |   |                                   |
|-----------------------|---|-----------------------------------|
| Description           | : | Microwave oven                    |
| Applicant             | : | WP1000DI-930                      |
| Model Number          | : | SHENZHEN JENS ELECTRONIC CO., LTD |
| Input                 | : | AC120V/60Hz                       |
| Rated Microwave Power | : | 1450W                             |
| Magnetron             | : | TOSHIBA 2M248K(SJ)                |

WP1000DI-930 is based on Model WP1000D-C30(B), but the appearances of the door window and the control panel are not same.

#### 3.2. Block Diagram of EUT Configuration



#### 3.3. Operating Condition of EUT

Test mode 1: 100P Power

#### 3.4. Support Equipment

N/A

#### 3.5. Test Conditions

Date of test : Sep.4-Sep. 5,2006  
 Date of EUT Receive : Sep.1,2006  
 Temperature: 26  
 Relative Humidity: 68%

#### 3.6. Modifications

No modification was made.

## 4. TEST EQUIPMENT USED

### 4.1. Test Equipment Used to Measure Conducted Disturbance

Table 2 Test Equipment List

| No.       | Equipment                | Manufacturer       | Model No. | Last Cal.    | Cal. Interval |
|-----------|--------------------------|--------------------|-----------|--------------|---------------|
| SB2603    | EMI Test Receiver        | Rohde & Schwarz    | ESCS30    | Jan.26, 2006 | 1 Year        |
| SB3321    | AMN                      | Rohde & Schwarz    | ESH2-Z5   | Jan.26, 2006 | 1 Year        |
| SB2604    | AMN                      | Rohde & Schwarz    | ESH3-Z5   | Jan.26, 2006 | 1 Year        |
| SB3436    | EMI Test Receiver        | Rohde & Schwarz    | ESI26     | Jan.26, 2006 | 1 Year        |
| SB3440    | Bilog Antenna            | Chase              | CBL6112B  | Jan.26, 2006 | 1 Year        |
| SB3435    | Horn Antenna             | Rohde & Schwarz    | HF906     | Jan.26, 2006 | 1 Year        |
| SB3434    | Horn Antenna             | Rohde & Schwarz    | HF906     | Jan.26, 2006 | 1 Year        |
| SB3435/01 | Amplifier(1-18GHz)       | Rohde & Schwarz    | ---       | Jan.26, 2006 | 1 Year        |
| SB3435/02 | Amplifier(18-40GHz)      | Rohde & Schwarz    | ---       | May.06, 2006 | 1 Year        |
| SB3435/03 | Horn Antenna             | Rohde & Schwarz    | AT4560    | May.06, 2006 | 1 Year        |
| SB3450/01 | 3m Semi-anechoic chamber | Albatross Projects | 9X6X6     | Jan 26,2006  | 1 Year        |

## 5. CONDUCTED DISTURBANCE TEST

### 5.1. Test Standard and Limit

#### 5.1.1. Test Standard

FCC Part 18

#### 5.1.2. Test Limit

Table 3 Conducted Disturbance Test Limit (Part 18 consumer device)

| Frequency     | Limit (dB $\mu$ V) |               |
|---------------|--------------------|---------------|
|               | Quasi-peak Level   | Average Level |
| 150kHz~500kHz | 66 ~ 56 *          | 56 ~ 46 *     |
| 500kHz~5MHz   | 56                 | 46            |
| 5MHz~30MHz    | 60                 | 50            |

\* Decreasing linearly with logarithm of the frequency

### 5.2. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions form both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

### 5.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

### 5.4. Test Data

The emissions don't show in below are too low against the limits.

Table 4 Conducted Disturbance Test Data

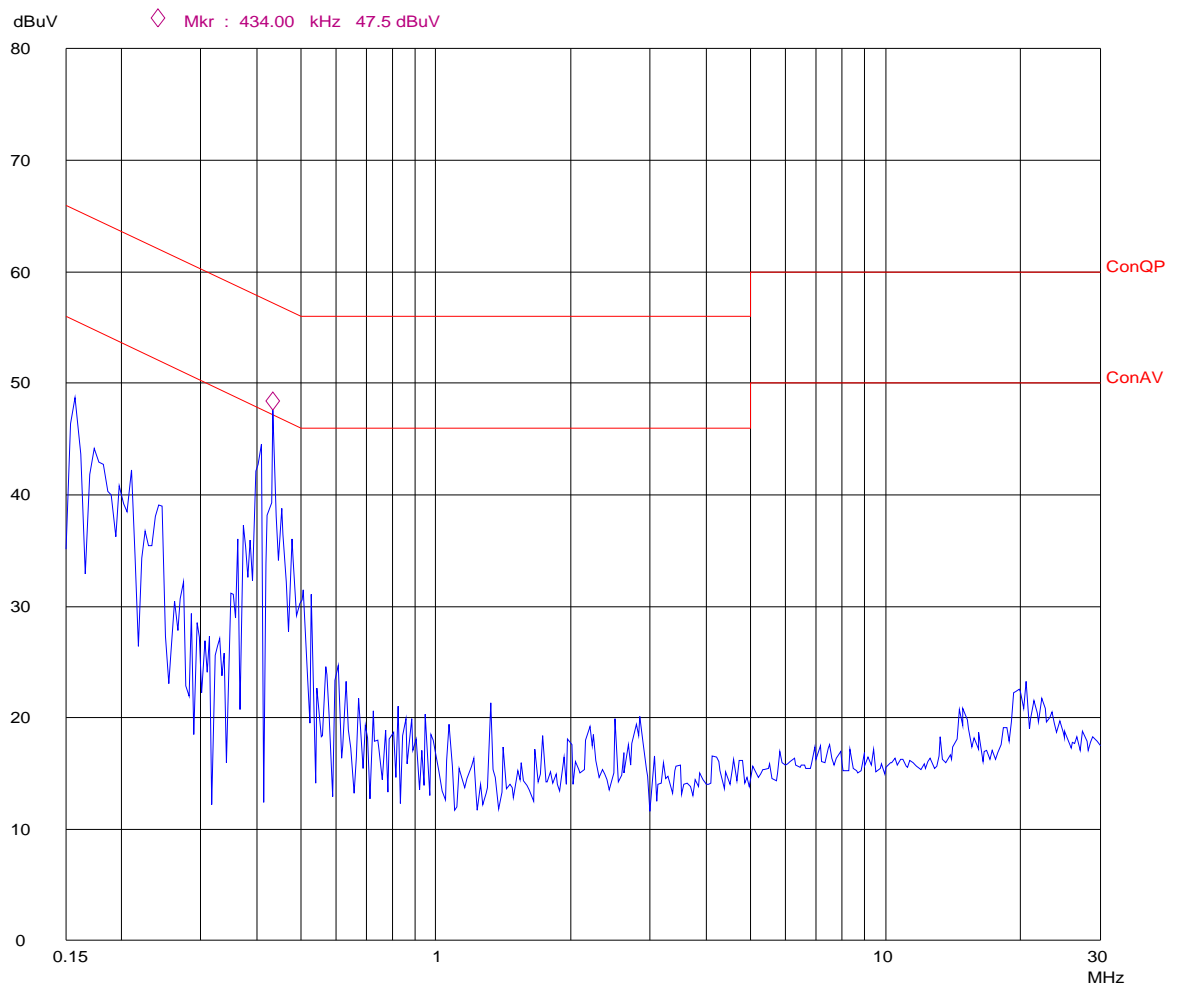
| Model No.: WP1000DI-930 |                         |                       |                         |                       |                    |                         |                       |                         |                       |
|-------------------------|-------------------------|-----------------------|-------------------------|-----------------------|--------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| Test Mode: 1            |                         |                       |                         |                       |                    |                         |                       |                         |                       |
| Line                    |                         |                       |                         |                       | Neutral            |                         |                       |                         |                       |
| Frequency<br>(MHz)      | Quasi-Peak              |                       | Average                 |                       | Frequency<br>(MHz) | Quasi-Peak              |                       | Average                 |                       |
|                         | Reading<br>(dB $\mu$ V) | Limit<br>(dB $\mu$ V) | Reading<br>(dB $\mu$ V) | Limit<br>(dB $\mu$ V) |                    | Reading<br>(dB $\mu$ V) | Limit<br>(dB $\mu$ V) | Reading<br>(dB $\mu$ V) | Limit<br>(dB $\mu$ V) |
| 0.150                   | 49.0                    | 66                    | 20.1                    | 59                    | 0.186              | 45.3                    | 64.2                  | 17.0                    | 56.7                  |
| 0.434                   | 9.1                     | 57.2                  | 14.7                    | 47.5                  | 0.426              | 40.0                    | 57.3                  | 14.3                    | 47.7                  |

Note: 1. The other emission levels were very low against the limit.



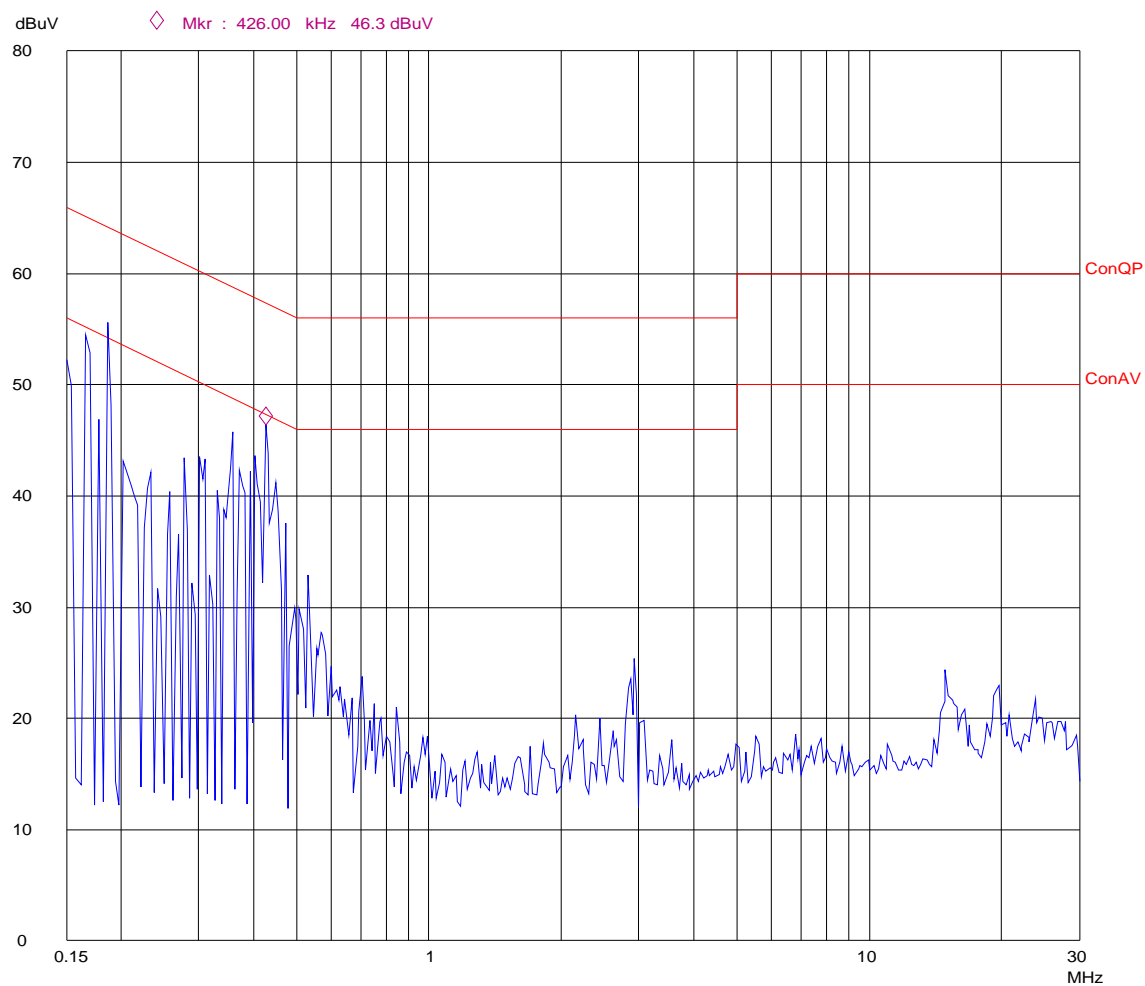
## Conducted Disturbance

EUT: WP1000DI-930  
Op Cond: High  
Test Spec: L  
Comment: AC 120V/60Hz



## Conducted Disturbance

EUT: WP1000DI-930  
Op Cond: High  
Test Spec: N  
Comment: AC 120V/60Hz



## 6. RF POWER OUTPUT MEASUREMENT AND RESULT

The Calorimetric Method was used to determine maximum output power. A 1000 ml water load was placed in the center of the oven. A thermometer was used to measure temperature rise.

$$Power(W) = \frac{(4.2 \text{ Joules / Cal}) * (VolumeInml) * (TemperatureRise)}{TimeinSeconds}$$

Magnetron type: TOSHIBA 2M248K(SJ)

| Quantity of Water(ml) | Starting Temperature( ) | Final Temperature(( ) | Elasped Time(Second) |
|-----------------------|-------------------------|-----------------------|----------------------|
| 1000                  | 10.5                    | 22.5                  | 60                   |

$$Power(W) = \frac{(4.2) * (1000) * (13.6)}{60}$$

$$Power(W)=875$$

## 7. RADIATED DISTURBANCE TEST

### 7.1. Test Standard and Limit

#### 7.1.1. Test Standard

FCC Part 18

#### 7.1.2. Test Limit

Table 5 Radiated Disturbance Test Limit

| Operating Frequency | RF Power generated by equipment(watts) | Field strength limit ( $\mu\text{V/m}$ )  | Distance (m) |
|---------------------|--|---|--------------|
| Any ISM Frequency   | Below 500                              | 25  | 300          |
|                     | 500 or more                            | $25 \times \text{SQRT}(\text{power}/500)$ | 300          |

\*For the EUT of this test report, the measured RF power is 875W, and at test distance of 3 meters, the test limit is provided as 70.4dB $\mu\text{V/m}$  according to the table above.

### 7.2. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set **3 meters** away from the receiving antenna, which is mounted on an antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

### 7.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

### 7.4. Test Data

Emissions don't show below are too low against the limits.

Table 6 Radiated Disturbance Test Data

| Model No.: WP1000DI-930 |                      |                         |                                |              |                    |      |
|-------------------------|----------------------|-------------------------|--------------------------------|--------------|--------------------|------|
| Test Mode: 1            |                      |                         |                                |              |                    |      |
| Frequency<br>GHz        | Emission<br>(dBuV/m) | Read<br>Value<br>(dBuV) | Correction<br>Factor<br>(dB/m) | Polarization | Limits<br>(dBuV/m) | Note |
| 55.335                  | 23.2                 | 15.7                    | 7.5                            | Vertical     | 70.4               |      |
| 328.524                 | 25.9                 | 8.6                     | 17.3                           | Horizontal   | 70.4               |      |
| 4910.500                | 46.8                 | 44.5                    | 2.3                            | Horizontal   | 70.4               |      |
| 1352.500                | 48.1                 | 55.3                    | -7.2                           | Horizontal   | 70.4               |      |
| 8688.667                | 49.0                 | 39.8                    | 9.2                            | Horizontal   | 70.4               |      |
| 7353.450                | 43.1                 | 35.0                    | 8.1                            | Vertical     | 70.4               |      |
| 8150.100                | 40.6                 | 31.5                    | 9.1                            | Vertical     | 70.4               |      |
| 8688.790                | 41.1                 | 31.9                    | 9.2                            | Vertical     | 70.4               |      |

Note :

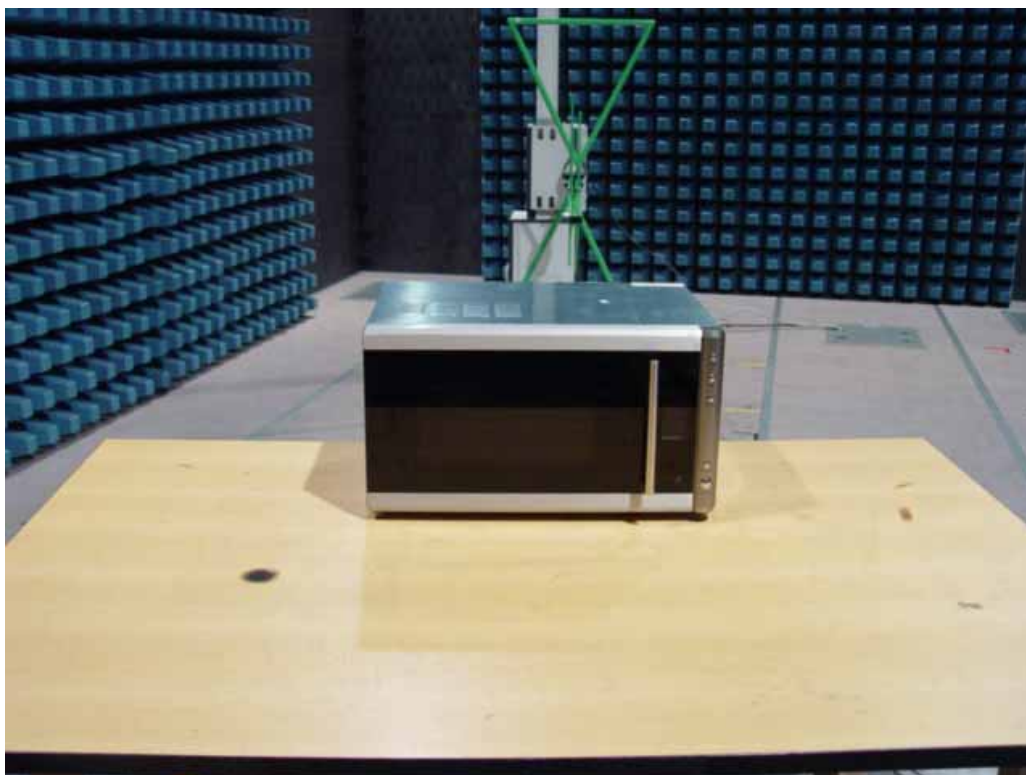
1. Emission level(dBuV/m)=Read Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)+Amplifier Factor(dB)
3. The other emission levels were very low against the limit(>15dB to limit).
4. For test above 1GHz, Average detector with 1MHz RBW is used.

**APPENDIX I TEST PHOTO**

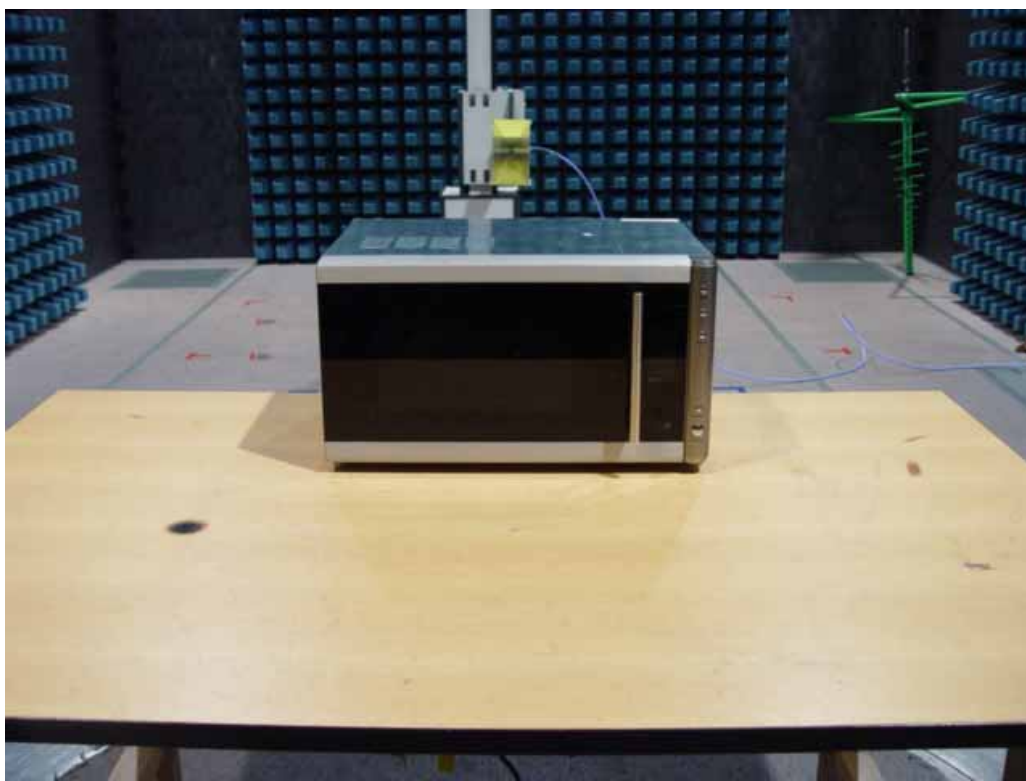
**Photo 1 Conducted Disturbance Test**



**Photo 2 Radiated disturbances (below 1GHz)**



**Photo 3 Radiated disturbances (Above 1GHz)**





## **APPENDIX II TEST PICTURE**

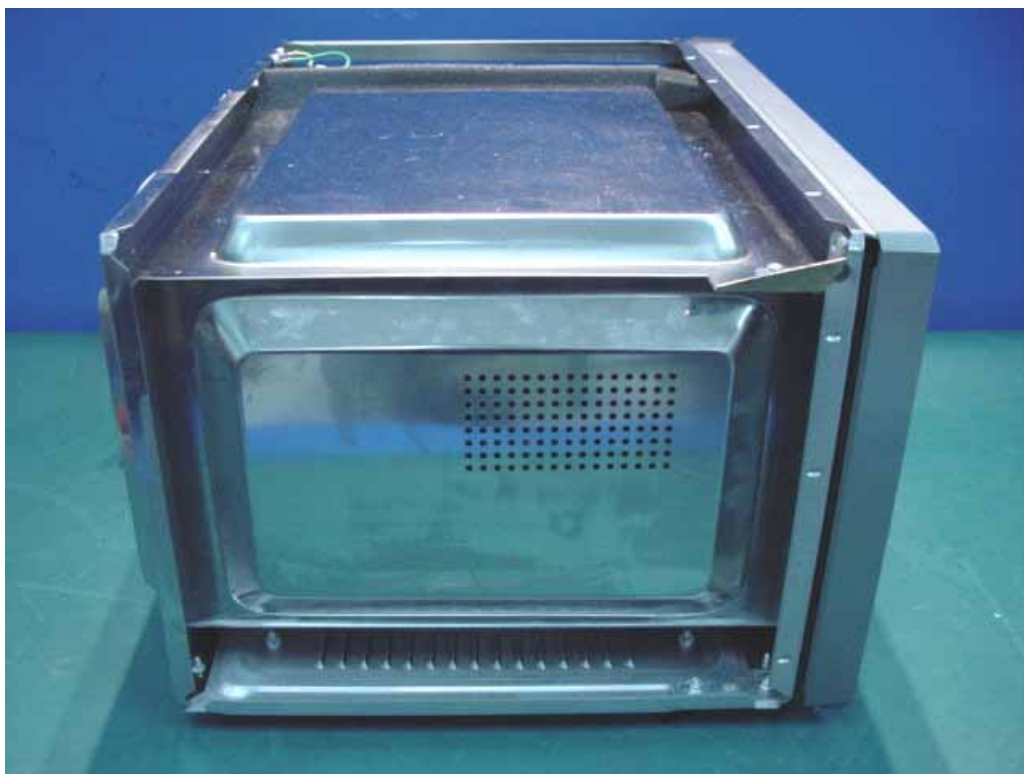
**Photo 1 Appearance of EUT**



**Photo 2 Appearance of EUT**



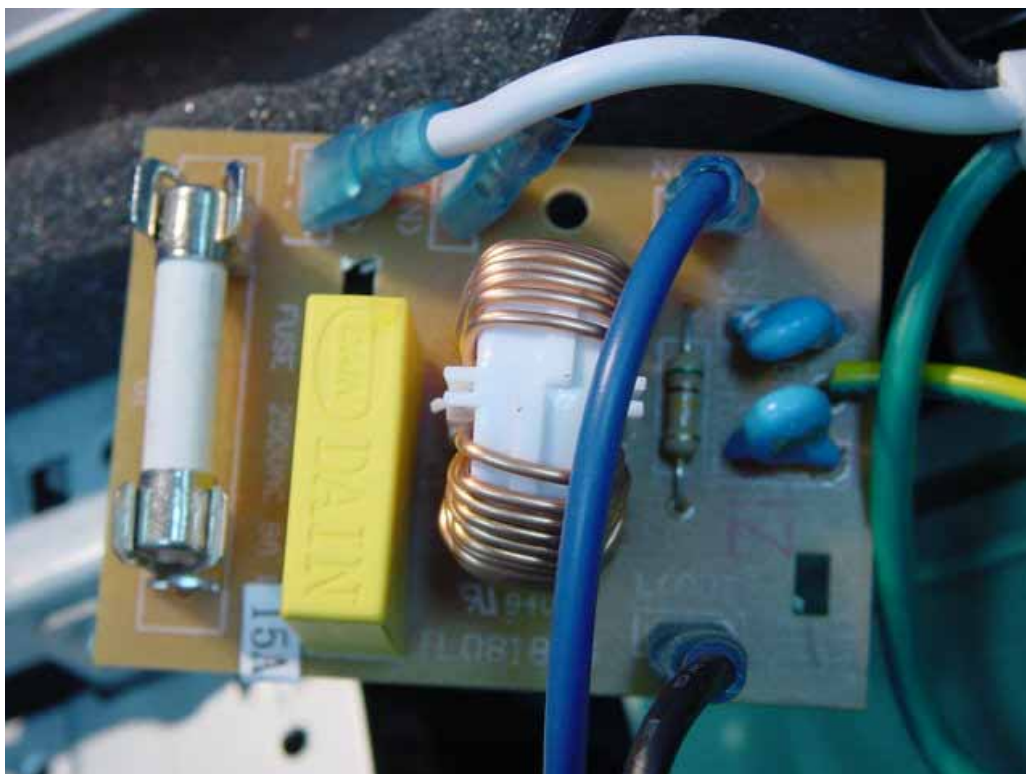
**Photo 3 Inside of EUT**



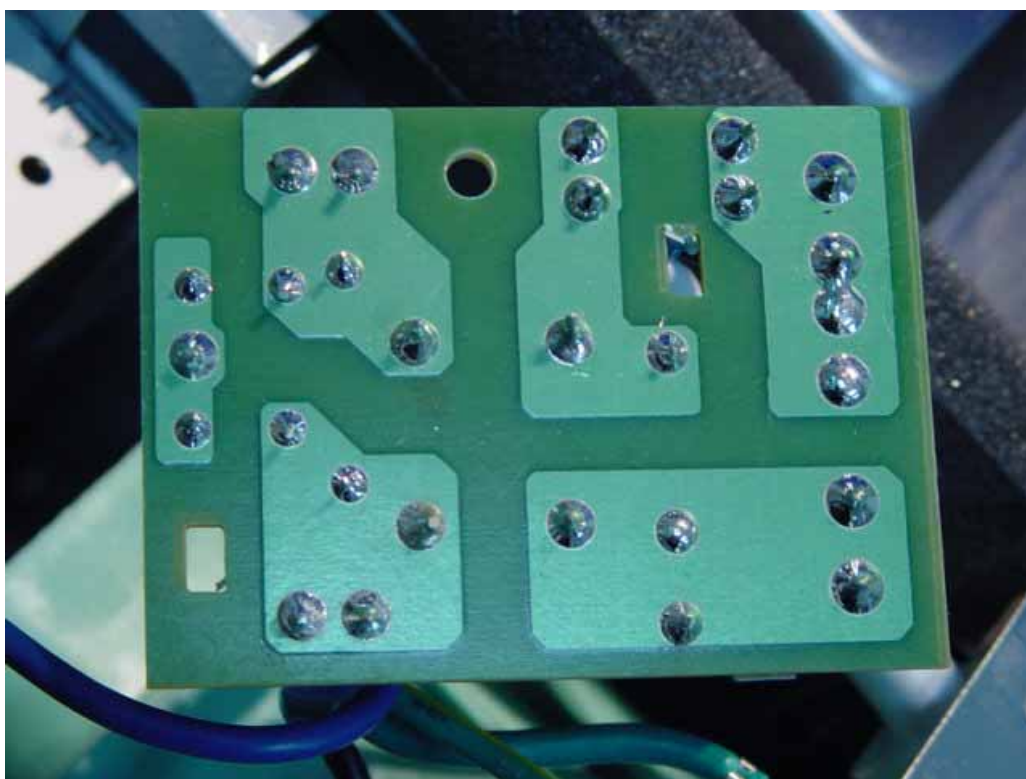
**Photo 4 Inside of EUT**



**Photo 5 Inside of EUT**

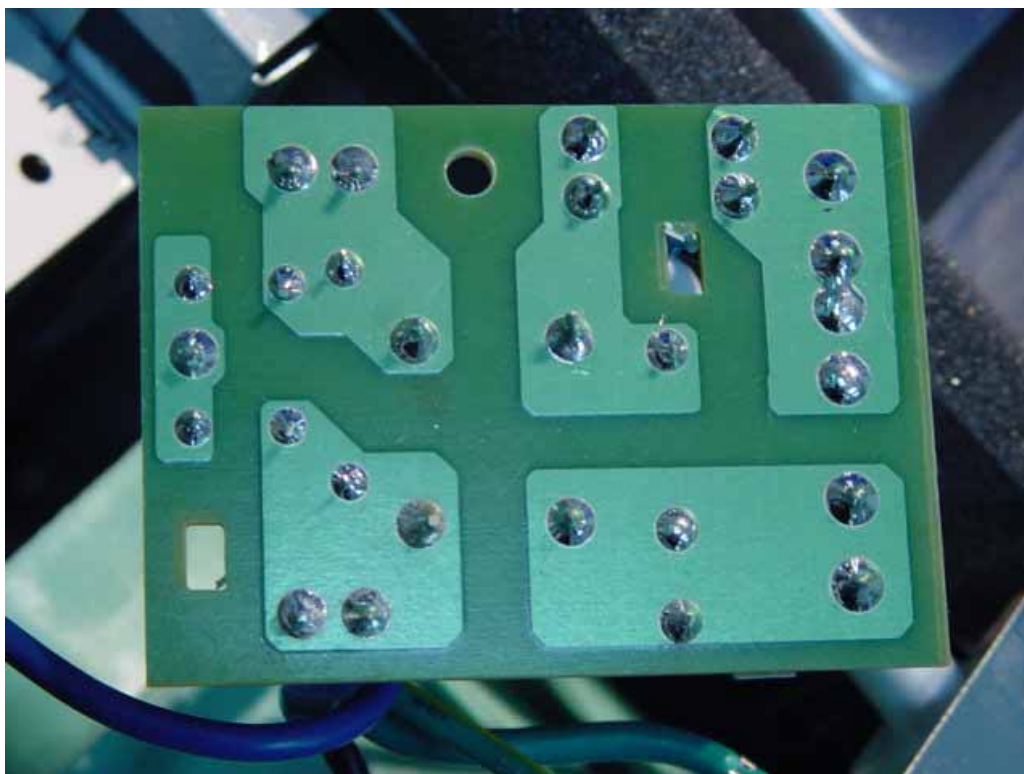


**Photo 6 Inside of EUT**

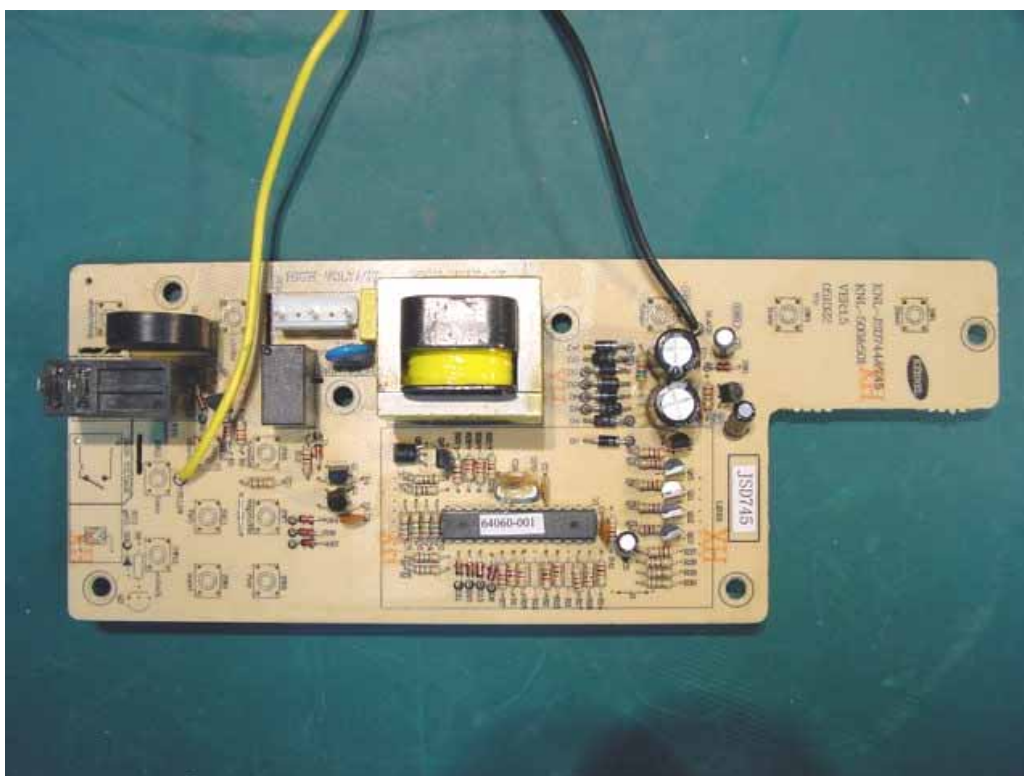




**Photo 7 Inside of EUT**



**Photo 8 Inside of EUT**



**Photo 9 Inside of EUT**

